Impact Sciences, Inc., "Landmark Village Planning Area Oak Tree Report, Los Angeles County, California" (September 2006; 2006D)

The Landmark Village Planning Area Oak Tree Report
Los Angeles County, California

Prepared for:

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1.0 EXECUTIVE SUMMARY

- Total Number of Ordinance-Size Oak Trees Surveyed 201
- Total Number of Oak Trees Planned for Removal 67
- Total Number of Oak Trees That May be Encroached Within the Protective Zone 14
- Total Number of Oak Trees That Would Not be Removed or Encroached, but Occur within 200 Feet from Grading Limit Line 120
- **Total Number of Oak Trees That Would Require a Los Angeles County Oak Tree Permit (Removed + Encroached) 81**

All oak trees surveyed within the Landmark Village Planning Area are displayed on attached engineering plans prepared by Psomas Engineering (Sheets 1, 2, and 3) and an aerial photograph showing the limits of the Onion Field Bank Stabilization prepared by Impact Sciences. All exhibits show oak trees occurring within the proposed grading limits and within 200 feet of the grading limit line. **Table 2** on page 14 of this report lists the type of project-related impact that may occur to each oak tree, and identifies on which sheet each tree is located.

2.0 INTRODUCTION

Pursuant to the Los Angeles County Oak Tree Ordinance, removal or damage of any tree of the oak genus (*Quercus*) that is 25 inches in circumference (8 inches in diameter), or has a combined trunk circumference of any two trunks of at least 38 inches (12 inches in diameter), as measured 4.5 feet above the mean natural grade (i.e., diameter at breast height [dbh]), is unlawful without a permit (Ordinance 88-0157 1, 82-0168 2, Section 22.56.2050, 1988). Damage is defined as any act causing or tending to cause injury to the root system or other parts of an oak tree, including, but not limited to, burning, application of toxic substances, operation of equipment or machinery, paving, changing of natural grade, and trenching or excavating (i.e., encroached) within the protective zone (the area within the dripline of an oak tree and extending therefrom to a point at least 5 feet outside the dripline, or 15 feet from the trunk[s] of a tree, whichever distance is greater) of an oak tree.

2.1 Purpose

As required by the County of Los Angeles and pursuant to Section 22.56.2090 of the Los Angeles County Code, the purpose of this oak tree report is to provide information to the County on oak trees that may be removed or damaged by the development of the Landmark Village Planning Area. The parameters used to evaluate each tree that was surveyed are described on the following pages under heading **2.0, METHODS**. A spreadsheet showing data collected for each oak tree surveyed is provided in **Appendix A**.

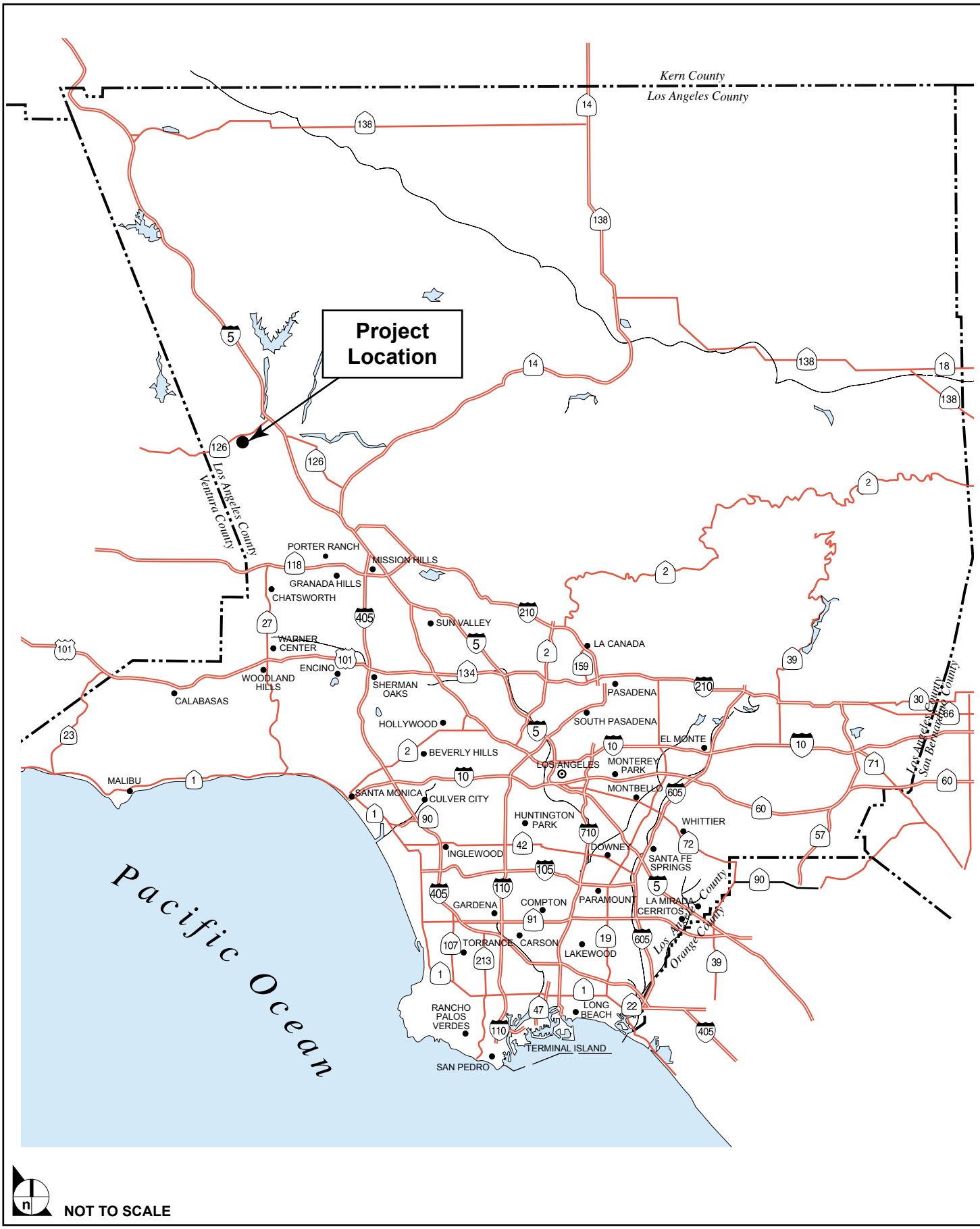
2.2 Site Location and Project Description

The project site is located in an unincorporated portion of northwestern Los Angeles County, approximately 30 miles northwest of downtown Los Angeles, in the Santa Clarita Valley. The Landmark Village Planning Area (project site) is part of the approved Newhall Ranch Specific Plan (Specific Plan), which was adopted by the Los Angeles County Board of Supervisors on May 27, 2003. The Specific Plan will guide the long-term development of the 11,963-acre Newhall Ranch community, including the goals, policies, and objectives of the County of Los Angeles General Plan and Santa Clarita Valley Areawide Plan. The Specific Plan is regulatory in nature and serves as the zoning for Newhall Ranch.

A regional location map (**Figure 1, Regional Location**) and a site vicinity map (**Figure 2, Site Vicinity**) illustrate the project site in a regional and local context, respectively. The site is located on both the south and north sides of State Route 126 (SR-126) near the intersection of Chiquita Canyon Road, and the confluence of the Santa Clara River and Castaic Creek. This area equates to approximately 679 acres, of which roughly 291 acres would be developed as part of the VTTM 53108 (**Figure 3, Landmark Village VTTM Boundary and Project Grading Limit Line**). The area that is 200 feet from the proposed grading line (project boundary) is approximately 1,751 acres.

The applicant is proposing to implement a portion of the Specific Plan through the processing of a VTTM 53108 to allow mixed-density residential development, supporting commercial, public facilities, recreation, and open space uses, along with necessary infrastructure. Consistent with the allowed uses identified in the Specific Plan, the proposed project contains 1,444 dwelling units along with 1,033,000 square feet of commercial/office/mixed use space, a 9-acre elementary school, 16.1-acre community park, 5.2 acres of private recreational facilities, 38.3 acres of open space and river trail uses, and roads. To support this development, an approved Water Reclamation Plant is to be constructed downstream on land located south of SR-126 near the Los Angeles County/Ventura County boundary line. The applicant also proposes to construct the planned Long Canyon Road Bridge as part of Landmark Village, which traverses the Santa Clara River.

The applicant will be required to construct or arrange for funding the construction of all infrastructures necessary to support the proposed project, including a domestic water system, sanitary sewer system, a drainage network, and Long Canyon Road Bridge. The project also includes introduced oak woodlands to serve as mitigation for damaged or removed oak trees (**Figure 4, Potential Oak Tree Mitigation Areas**). The Resource Management Plan component of the Specific Plan (Section 2.6) contains an Oak Resources Replacement Program, which identifies suitable replacement areas for oak trees. This section also defines the standards for the restoration and enhancement of oak resources within the Specific Plan.



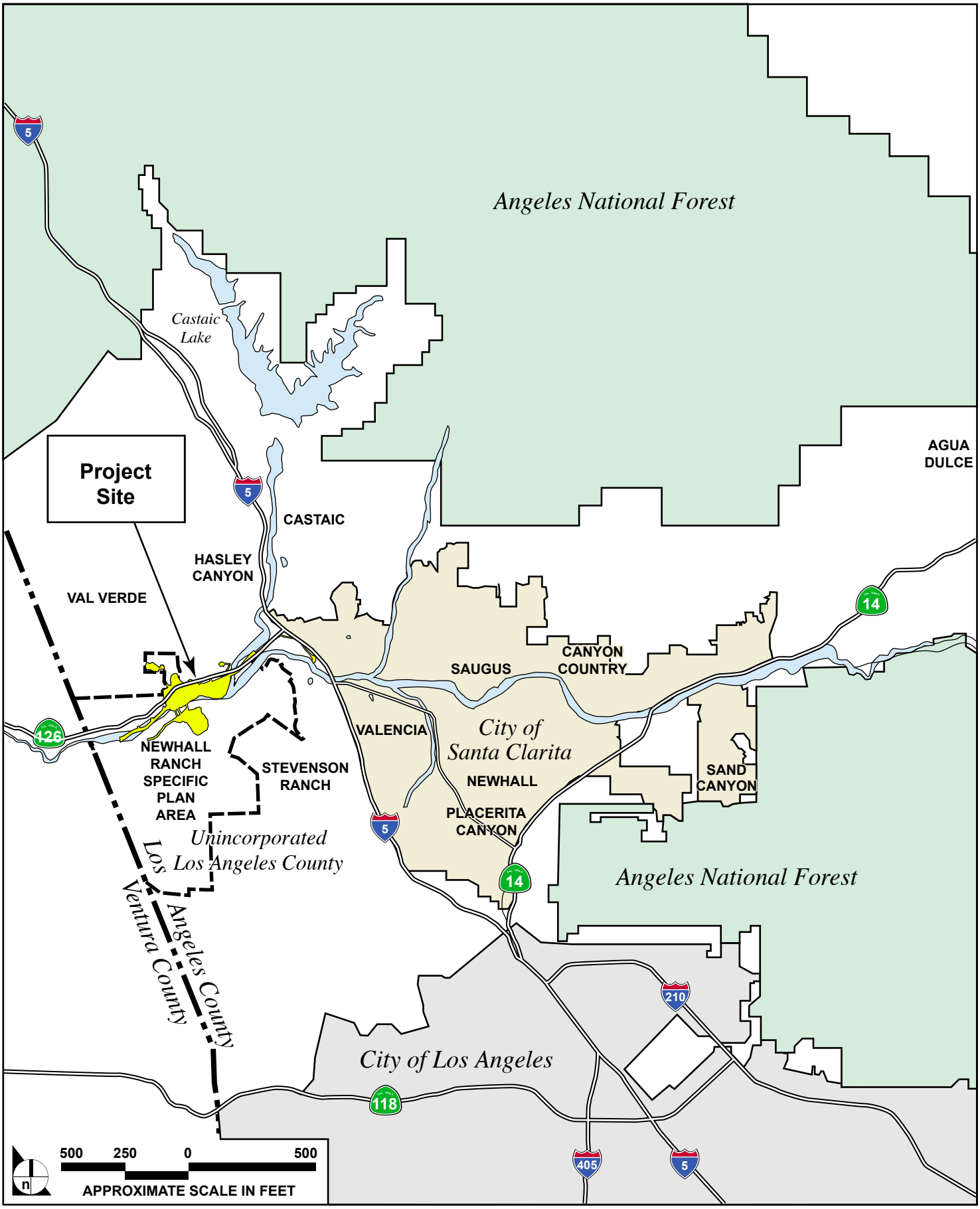
NOT TO SCALE

SOURCE: Impact Sciences, Inc. – January 2006

FIGURE **1**

Regional Location

32-92•01/06

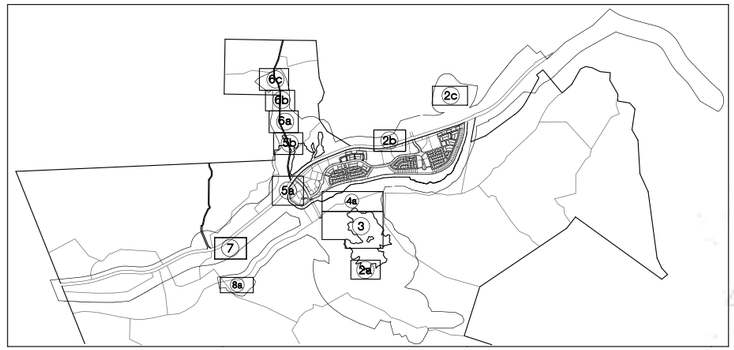


SOURCE: Impact Sciences, Inc. – January 2006

FIGURE **2**

Site Vicinity

32-92•02/06



KEYMAP
N.T.S.

SPECIFIC PLAN BOUNDARY OF PM24500-01 PMB 293 PG 34/67

NORTH GRADING SITE

SOUTH BORROW SITE

PROPOSED SOUTH HAUL ROUTE

HAUL ROUTE

SPINEFLOWER AVOIDANCE AREA

SPECIFIC PLAN BOUNDARY OF PM24500-01 PMB 293 PG 34/67

SPECIFIC PLAN BOUNDARY OF PM24500-01 PMB 293 PG 34/67

CANYON ROAD
CHOUTO
LONG CANYON
CLARA
SANTA
SR 126
WOLCOTT WAY
CASTAIC CREEK
COMMERCE CENTER DRIVE
HENRY MAYO DRIVE
GOLDEN STATE FREEWAY
THE OLD ROAD
MAGIC MOUNTAIN PARKWAY
RIVER
50'
200'
3
4
5
6
7
8

2400 1200 0 2400

APPROXIMATE SCALE IN FEET

LEGEND:

- SPECIFIC PLAN BOUNDARY PM24500-01 BOUNDARY
- PROJECT GRADING LIMIT LINE
- LANDMARK VILLAGE VTTM BOUNDARY

SURVEY NOTES:

TREE SURVEY DATA COLLECTION PERFORMED BY IMPACT SCIENCES October, 2003/March, 2004

LEGAL DESCRIPTION:

PARCELS 7, 8, 9, 10, AND A PORTION OF LOTS 20 AND 21 OF PARCEL MAP NO. 24500-01 PMB 293 PG 34/67, RECORDS OF LOS ANGELES COUNTY.

SOURCE: PSOMAS – May 2005

FIGURE **3**

Landmark Village VTTM Boundary and Project Grading Limit Line

32-92•02/06

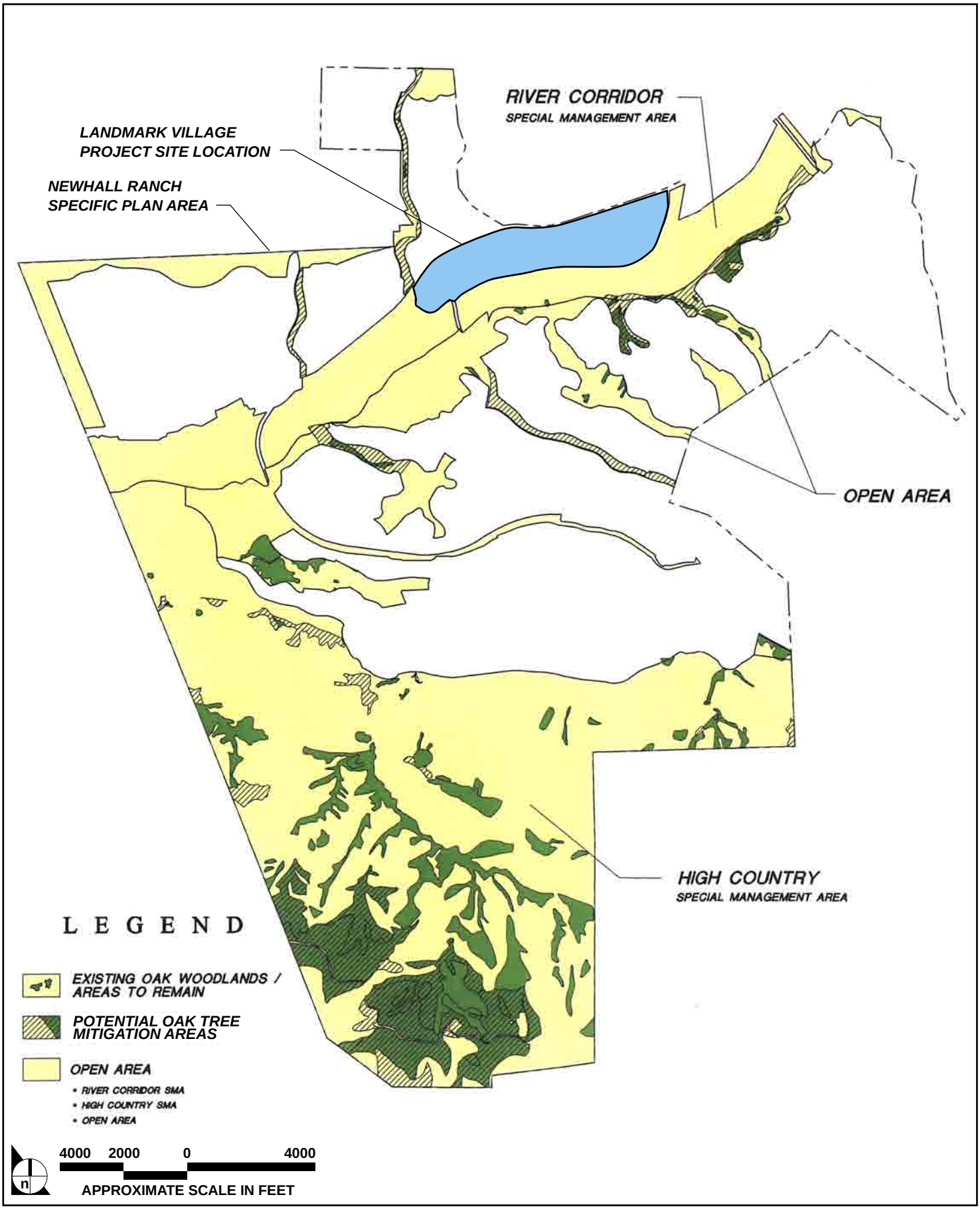
As indicated in the Resource Management Plan, suitable areas exist in the High Country Special Management Area of the Specific Plan for the restoration of oak resources and the enhancement of existing stands of oak trees. The High Country Special Management Area, which is depicted in **Figure 4**, includes areas in the upper elevations of the Santa Susana Mountains that have been disturbed by grazing. Additional opportunities exist within the Open Area designations of the Specific Plan (also shown in **Figure 4**), where oak resources can be planted as an expansion of existing oak woodlands or savannahs and in other areas that exhibit suitable topographic and soil conditions.

3.0 METHODS

Impact Sciences' biologists conducted on-site surveys and evaluations of the oak trees during 2005 and 2006. Only oak trees protected under the Los Angeles County Oak Tree Ordinance were surveyed. The project site was traversed on foot through areas where oak trees occur. Oak trees were surveyed from the base of each tree. A subjective alphabetical ranking ("A" being best and "F" being worst) was assigned for vigor, overall health, aesthetic value, and balance for each tree based on the criteria described below. Photographic examples of the alphabetical rankings for each of the four aforementioned survey parameters are shown below in **Figures 5–10**. All data collected for each oak tree are provided in **Appendix A**.

Evaluation of all oak trees surveyed included the following:

- Measuring the diameter of the trunk of each (ordinance size) oak tree using a forester's steel diameter-equivalent tape measure. Trees with multiple trunks were measured at breast height and measurements for up to five trunks were inputted in the field. The total number of trunks of trees with more than five trunks were noted in the comment section of the data spreadsheet (**Appendix A**);
- Measuring height and crown radius for each tree in all directions (north, south, east, and west);
- Identification of damage caused by pathogens or insect pests, by natural causes such as lightning, or from human activity;
- Evaluation of vigor based on such parameters as amount of new growth, leaf color, abnormal bark, dead wood, evidence of wilt, excessive necrosis or leaf chlorosis, thinning of crown, etc.;
- Characterizing the balance or symmetry of each oak tree based on the crown radius measurements and whether or not the tree was leaning or unstable;
- Assessment of overall health based on the evaluation of vigor, presence of damage, and comparison of typical archetype tree of same species; and
- Identification of trees that are classified as heritage oak trees.



SOURCE: PSOMAS – May 2003

FIGURE **4**

Potential Oak Tree Mitigation Areas

Figure 5 – Tree # 489 – Coast Live Oak tree with all “A” Grades (Vigor, Health, Aesthetics, Balance)

Figure 6 – Tree # 454 – Coast Live Oak tree with all “B” Grades (Vigor, Health, Aesthetics, Balance)

SOURCE: Impact Sciences, Inc. – February 2006

FIGURES **5 & 6**

Site Photos

Figure 7 – Tree # 61 – Coast Live Oak tree with all "C" Grades (Vigor, Health, Aesthetics, Balance)

Figure 8 – Tree # 338 – Coast Live Oak tree with all "D" Grades (Vigor, Health, Aesthetics, Balance)

SOURCE: Impact Sciences, Inc. – February 2006

FIGURES **7 & 8**

Site Photos

Figure 9 – Tree # 26 – Coast Live Oak tree with all “E” Grades (Vigor, Health, Aesthetics, Balance)

Figure 10 – Tree # 585 – Coast Live Oak tree with all “F” Grades (Vigor, Health, Aesthetics, Balance)

SOURCE: Impact Sciences, Inc. – February 2006

FIGURES **9 & 10**

Site Photos

All oak trees surveyed were tagged for identification purposes with 1-inch (or 3-inch oval), non-corrosive, all-weather metal tags. All oak trees were surveyed with a Trimble Pro XRS GPS system, utilizing the OmniSTAR system specifically for surveying the trees and inputting the evaluation criteria data described above. The OmniSTAR system is a wide-area differential GPS service using satellite broadcast techniques in which data from many widely-spaced reference stations are used in a proprietary multi-site solution to achieve sub-meter, or less, positioning over most land areas worldwide. All trees surveyed were mapped using a Global Information System (GIS).

All oak trees surveyed within the Landmark Village Planning Area are displayed on attached engineering plans prepared by Psomas Engineering (Sheets 1, 2, and 3) and an aerial photograph showing the limits of the Onion Field Bank Stabilization prepared by Impact Sciences. All exhibits show oak trees occurring within the proposed grading limits and within 200 feet of the grading limit line.

In addition, while conducting tree surveys, biologists identified all oak trees that have the potential to be successfully relocated to undisturbed open space areas within the Newhall Ranch Specific Plan boundary. Trees identified as candidates for relocation based on the current assessments (e.g., health, vigor, aesthetics, balance) are identified below in **Table 3, Oak Trees Located on the Landmark Village Project Site that are Proposed for Relocation Within the Specific Plan Boundary Based on Current Assessments**.

4.0 RESULTS

A total of 201 oak trees subject to the Los Angeles County Oak Tree Ordinance were surveyed within the Landmark Village Planning Area, which includes the Landmark Village VTTM 53108, all proposed grading limits (including access roads, infrastructure, bank stabilization, and the borrow site), and the area within 200 feet of the grading limit line (see attached maps). Of the 201 oak trees surveyed, a total of 67 (33% of all trees surveyed) oak trees will be removed; 56 of which are coast live oaks (*Quercus agrifolia)*, 5 are valley oaks (*Q. lobata)*, 5 are scrub oaks (*Q. berberidifolia)*, and one is a MacDonald oak (*Q. x macdolnaldii*), a hybrid of a valley oak and a scrub oak. A total of 10 of these trees are considered heritage trees under Los Angeles County Oak Tree Ordinance (9 coast live oaks and one valley oak). Furthermore, a total of 14 (7% of all trees surveyed) oak trees may be encroached/damaged by proposed grading and construction activities, all of which are coast live oaks (3 are considered heritage trees). A total of 120 oak trees (60% of all trees surveyed) occur within 200 feet from the grading limit line, none of which would be removed or encroached upon by construction related activities.

In addition, a total of 26 oak trees were identified as candidates for relocation to undisturbed open space areas within the Specific Plan boundary (**Table 3**).

Table 1
Summary of Landmark Village Project Area Oak Tree Survey Data

	Number of Ordinance-Size Oak Trees (% of trees surveyed)	Oak Tree Tag Number
Total Number of Oak Trees Surveyed	201 (100%)	**Appendix A: Oak Tree Survey Data**
Total Number of Oak Trees Planned for Removal	67 (33%)	8, 9, 10, 51, 60, 61, 63, 64, **83***, 84, **87***, 248–250, 335–337, **338***, 339–342, **344***–348, **349***, 350, 351, **352***, 354–356, **357***, 396–398, 400, 401, **492***, 594, 1587–1592, 1594, 1596, **1597***, 1598, 3073, **4003***, 4016–4019, 4022, 4025–4028, 4055–4057
Total Number of Oak Trees That May be Encroached Within the Protective Zone	14 (7%)	92, 93, 98, 99, 100, 439, 448, **488***, **489***, 498, **503***, 592, 1605, 4007
Total Number of Oak Trees That Would Not Be Removed or Encroached, But Occur within 200 Feet From Grading Limit Line	120 (60%)	**Appendix A: Oak Tree Survey Data**
Total Number of Oak Trees that Would Require a Los Angeles County Oak Tree Permit (Removed+Encroached)	**81 (40%)**	8, 9, 51, 60, 61, 63, 64, **83***, 84, **87***, 92, 93, 98, 99, 100, 248–250, 335-337, **338***, 339–342, **344***–348, **349***, 350, 351, **352***, 354–356, **357***, 396–398, 400, 401, 439, 448, **488***, **489***, **492***, 498, **503***, 592, 594, 1587–1592, 1594, 1596, **1597***, 1598, 1605, 3073, **4003***, 4007, 4016–4019, 4022, 4025–4028, 4055–4057

*** Heritage tree**
Note: Dead trees are displayed on all exhibits and are included in Appendix A, but are not included on page 12 or in Table 1.

Table 2 lists the type of project-related activity that would result in removal or encroachments for each tree occurring within the Landmark Village Planning Area. **Table 2** also lists the map and sheet location where each tree can be viewed.

Table 2
Type of Project-Related Impact Proposed on Each Oak Tree Planned for Removal

Tree Number	Type of Impact	Type of Project-Related Impact	Map Location
8	Removal	Adobe Borrow Site Grading	Psomas: Sheet 3 of 3 (Adobe Canyon)
9	Removal	Adobe Borrow Site Grading	Psomas: Sheet 3 of 3 (Adobe Canyon)
10	Removal	Adobe Borrow Site Grading	Psomas: Sheet 3 of 3 (Adobe Canyon)
51	Removal	Adobe Borrow Site Grading	Psomas: Sheet 3 of 3 (Adobe Canyon)
60	Removal	Adobe Borrow Site Grading	Psomas: Sheet 3 of 3 (Adobe Canyon)
61	Removal	Adobe Borrow Site Grading	Psomas: Sheet 3 of 3 (Adobe Canyon)
63	Removal	Adobe Borrow Site Grading	Psomas: Sheet 3 of 3 (Adobe Canyon)
64	Removal	Adobe Borrow Site Grading	Psomas: Sheet 3 of 3 (Adobe Canyon)
***83**	Removal	State Route 126 Widening	Psomas: Sheets 1, 2 of 3
84	Removal	Utility Corridor – Chiquito Canyon Road	Psomas: Sheet 1 of 3
***87**	Removal	State Route 126 Widening	Psomas: Sheets 1 of 3
92	Encroachment	Valencia Commerce Center Water Tank Grading	Psomas: Sheet 3 of 3 (Franklin Parkway)
93	Encroachment	Valencia Commerce Center Water Tank Grading	Psomas: Sheet 3 of 3 (Franklin Parkway)
98	Encroachment	Valencia Commerce Center Water Tank Grading	Psomas: Sheet 3 of 3 (Franklin Parkway)
99	Encroachment	Valencia Commerce Center Water Tank Grading	Psomas: Sheet 3 of 3 (Franklin Parkway)
100	Encroachment	Valencia Commerce Center Water Tank Grading	Psomas: Sheet 3 of 3 (Franklin Parkway)
248	Removal	Adobe Borrow Site Grading	Psomas: Sheet 3 of 3 (Adobe Canyon)
249	Removal	Adobe Borrow Site Grading	Psomas: Sheet 3 of 3 (Adobe Canyon)
250	Removal	Adobe Borrow Site Grading	Psomas: Sheet 3 of 3 (Adobe Canyon)

Tree Number	Type of Impact	Type of Project-Related Impact	Map Location
335	Removal	Adobe Borrow Site Grading	Psomas: Sheet 3 of 3 (Adobe Canyon)
336	Removal	Adobe Borrow Site Grading	Psomas: Sheet 3 of 3 (Adobe Canyon)
337	Removal	Adobe Borrow Site Grading	Psomas: Sheet 3 of 3 (Adobe Canyon)
***338**	Removal	Adobe Borrow Site Grading	Psomas: Sheet 3 of 3 (Adobe Canyon)
339	Removal	Adobe Borrow Site Grading	Psomas: Sheet 3 of 3 (Adobe Canyon)
340	Removal	Adobe Borrow Site Grading	Psomas: Sheet 3 of 3 (Adobe Canyon)
341	Removal	Adobe Borrow Site Grading	Psomas: Sheet 3 of 3 (Adobe Canyon)
342	Removal	Adobe Borrow Site Grading	Psomas: Sheet 3 of 3 (Adobe Canyon)
***344**	Removal	Adobe Borrow Site Grading	Psomas: Sheet 3 of 3 (Adobe Canyon)
345	Removal	Adobe Borrow Site Grading	Psomas: Sheet 3 of 3 (Adobe Canyon)
347	Removal	Adobe Borrow Site Grading	Psomas: Sheet 3 of 3 (Adobe Canyon)
348	Removal	Adobe Borrow Site Grading	Psomas: Sheet 3 of 3 (Adobe Canyon)
***349**	Removal	Adobe Borrow Site Grading	Psomas: Sheet 3 of 3 (Adobe Canyon)
350	Removal	Adobe Borrow Site Grading	Psomas: Sheet 3 of 3 (Adobe Canyon)
351	Removal	Adobe Borrow Site Grading	Psomas: Sheet 3 of 3 (Adobe Canyon)
***352**	Removal	Adobe Borrow Site Grading	Psomas: Sheet 3 of 3 (Adobe Canyon)
354	Removal	Bank Stabilization – South Bank Santa Clara River	Psomas: Sheet 1 of 3
355	Removal	Bank Stabilization – South Bank Santa Clara River	Psomas: Sheet 1 of 3
356	Removal	Bank Stabilization – South Bank Santa Clara River	Psomas: Sheet 1 of 3
***357**	Removal	Bank Stabilization – South Bank Santa Clara River	Psomas: Sheet 1 of 3
396	Removal	Utility Corridor	Psomas: Sheet 2 of 3
397	Removal	Bank Stabilization – Chiquito Canyon Creek	Psomas: Sheets 1, 2 of 3
398	Removal	Bank Stabilization – Chiquito Canyon Creek	Psomas: Sheets 1, 2 of 3

Tree Number	Type of Impact	Type of Project-Related Impact	Map Location
400	Removal	State Route 126 Widening	Psomas: Sheets 1, 2 of 3
401	Removal	State Route 126 Widening	Psomas: Sheets 1, 2 of 3
439	Encroachment	North Grading Area – Chiquito Canyon Road Realignment	Psomas: Sheet 3 of 3 (Chiquito Canyon)
448	Encroachment	North Grading Area – Chiquito Canyon Road Realignment	Psomas: Sheet 3 of 3 (Chiquito Canyon)
***488**	Encroachment	North Grading Area – Chiquito Canyon Road Realignment	Psomas: Sheet 3 of 3 (Chiquito Canyon)
***489**	Encroachment	North Grading Area – Chiquito Canyon Road Realignment	Psomas: Sheet 3 of 3 (Chiquito Canyon)
***492**	Removal	North Grading Area – Chiquito Canyon Road Realignment	Psomas: Sheet 3 of 3 (Chiquito Canyon)
498	Encroachment	North Gorading Area – Chiquito Canyon Road Realignment	Psomas: Sheet 3 of 3 (Chiquito Canyon)
***503**	Encroachment	North Grading Area – Chiquito Canyon Road Realignment	Psomas: Sheet 3 of 3 (Chiquito Canyon)
***592**	Encroachment	North Grading Area – Chiquito Canyon Road Realignment	Psomas: Sheet 3 of 3 (Chiquito Canyon)
594	Removal	Adobe Borrow Site Grading	Psomas: Sheet 3 of 3 (Adobe Canyon)
1587	Removal	Bank Stabilization – South Bank Santa Clara River	Impact Sciences: Aerial Photograph
1588	Removal	Bank Stabilization – South Bank Santa Clara River	Impact Sciences: Aerial Photograph
1589	Removal	Bank Stabilization – South Bank Santa Clara River	Impact Sciences: Aerial Photograph
1590	Removal	Bank Stabilization – South Bank Santa Clara River	Impact Sciences: Aerial Photograph
1591	Removal	Bank Stabilization – South Bank Santa Clara River	Impact Sciences: Aerial Photograph
1592	Removal	Bank Stabilization – South Bank Santa Clara River	Impact Sciences: Aerial Photograph
1594	Removal	Bank Stabilization – South Bank Santa Clara River	Impact Sciences: Aerial Photograph
1596	Removal	Bank Stabilization – South Bank Santa Clara River	Impact Sciences: Aerial Photograph
***1597**	Removal	Bank Stabilization – South Bank Santa Clara River	Impact Sciences: Aerial Photograph
1598	Removal	Bank Stabilization – South Bank Santa Clara River	Impact Sciences: Aerial Photograph

Tree Number	Type of Impact	Type of Project-Related Impact	Map Location
1605	Encroachment	Bank Stabilization – South Bank Santa Clara River	Impact Sciences: Aerial Photograph
3073	Removal	Bank Stabilization – South Bank Santa Clara River	Impact Sciences: Aerial Photograph
***4003**	Removal	Utility Corridor – Chiquito Canyon Road	Psomas: Sheet 3 of 3 (Chiquito Canyon)
4016	Removal	Adobe Borrow Site Grading	Psomas: Sheet 3 of 3 (Adobe Canyon)
4017	Removal	Adobe Borrow Site Grading	Psomas: Sheet 3 of 3 (Adobe Canyon)
4018	Removal	Valencia Commerce Center Water Tank Grading	Psomas: Sheet 3 of 3 (Franklin Parkway)
4019	Removal	Bank Stabilization – South Bank Santa Clara River	Impact Sciences: Aerial Photograph
4022	Removal	Valencia Commerce Center Water Tank Grading	Psomas: Sheet 3 of 3 (Franklin Parkway)
4025	Removal	Adobe Borrow Site Grading	Psomas: Sheet 3 of 3 (Adobe Canyon)
4026	Removal	Adobe Borrow Site Grading	Psomas: Sheet 3 of 3 (Adobe Canyon)
4027	Removal	Adobe Borrow Site Grading	Psomas: Sheet 3 of 3 (Adobe Canyon)
4028	Removal	Adobe Borrow Site Grading	Psomas: Sheet 3 of 3 (Adobe Canyon)
4055	Removal	Adobe Borrow Site Grading	Psomas: Sheet 3 of 3 (Adobe Canyon)
4056	Removal	Adobe Borrow Site Grading	Psomas: Sheet 3 of 3 (Adobe Canyon)
4057	Removal	Adobe Borrow Site Grading	Psomas: Sheet 3 of 3 (Adobe Canyon)

Table 3
Oak Trees Located on the Landmark Village Project Site that are Proposed for Relocation within the Specific Plan Boundary Based on Current Assessments

Oak Species	Oak Tree Tag Number
Quercus berberidifolia	60
Quercus x macdonaldii	64
Quercus lobata	1587
Quercus agrifolia	83, 84, 248, 249, 336, 337, 339, 340-342, 344, 347-351, 354, 355, 1588, 1590, 3073, 4018, 4022

5.0 CONCLUSION

A total of 81 (40% of all trees surveyed) oak trees would be either removed or potentially damaged (encroached) from construction-related activities, and thus all 81 trees would require an oak tree permit from the County of Los Angeles. To reduce the permanent loss of mature oak trees and the habitat they provide to indigenous plant and animal species, as well as migrating birds, Newhall Land and Farming has retained Richard Johnson and Associates to develop boxing, planting, and maintenance procedures for candidate trees for relocation within the Newhall Ranch Specific Plan boundary. Attached to this report as **Appendix B** are Richard Johnson and Associates' Boxing Specifications and Recommendations for transplanting and maintaining trees selected for relocation. A summary of the field data collected from the 2005/2006 oak tree survey is shown below in **Table 1, Summary of Landmark Village Project Area Oak Tree Survey Data**.

6.0 SUGGESTED MITIGATION MEASURES

Pursuant to Section 22.56.2090 of the Los Angeles County Oak Tree Ordinance, the following mitigation measures are proposed to preserve and protect the oak trees addressed in this report. These mitigation and maintenance measures are suggested to mitigate the loss and impacts to 81 oak trees and to preserve and protect the remaining oak trees on the site.

MM-1 Replacement Trees

- *Consistent with the Newhall Ranch Specific Plan, oak trees removed or damaged shall be replaced by a tree of the same species at a ratio of 2:1.*
- *All replacement trees shall be at least a 15-gallon specimen in size and measure 1 inch or more in diameter, as measured from 1 foot above the base. Free-form trees with multiple stems are permissible; the combined*

diameter of the two largest stems of such trees shall measure a minimum of 1 inch in diameter, as measured 1 foot above the base. Replacement trees shall consist exclusively of indigenous oak trees and be certified as being grown from a seed source collected in Los Angeles or Ventura Counties.

MM-2 Protective Fencing

A plan shall be developed for protecting oak trees on the subject property during and after development. This plan shall be approved by the Forestry Division of the County of Los Angeles.

- *Equipment damage to limbs, trunks, and roots of all remaining trees shall be avoided during project construction and development. Even slight trunk injuries can result in susceptibility to long-term pathogenic maladies.*

- *Protective fencing not less than four feet in height shall be placed at the limits of the protective zone of any individual oak tree or dense stand of oak trees within 200 feet of the grading limits, and shall be inspected by the forester and/or fire warden prior to commencement of any activity on the subject property, and shall remain in place until construction is completed.*

MM-3 Grading Restrictions near Protective Zones

Care must be taken to limit grade changes near the protective zone of an oak tree. Grade changes can lead to plant stress from oxygen deprivation or oak root fungus at the root collar of oaks. Minor grade changes further from the trunk are not as critical but can negatively affect the health of the tree if not carefully monitored by a County-approved certified arborist.

- *The grade shall not be lowered or raised around the trunks (i.e., within the protective zone) of any oak tree without the approval of the Los Angeles County forester or a County-certified arborist. A certified arborist shall supervise all excavation or grading proposed within the protective zone of a tree.*

- *Trenching, excavation, or clearance of vegetation within the protective zone of an oak tree shall be accomplished by the use of hand tools or small hand-held power tools. Any major roots encountered shall be conserved to the greatest extent possible and treated as recommended by the certified arborist.*

- *No utility trenches shall be routed within the protective zone of an oak tree unless no feasible alternative locations are available, and shall be approved by the County forester.*

MM-4 Equipment Storage

- *No storage of equipment, supplies, vehicles, or debris shall be permitted within the protective zone of an oak tree.*

- *No dumping of construction wastewater, paint, stucco, concrete, or any other clean-up waste shall occur within the protective zone of an oak tree.*

- *No temporary structures shall be placed within the protective zone of any remaining oak tree.*

MM-5 Maintenance

Healthy trees, if not maintained, often grow beyond their ability to support themselves and fail at their most naturally occurring weak point. This is typically at a branch union at or near the main crotch of the tree. Weight-reduction pruning and/or cabling is important in any tree preservation program. Pruning of oak trees within residential neighborhoods is recommended every four to six years, based on a County-certified arborist's determination.

- *Pruning of replacement oak trees and preserved oak trees shall include the removal of dead wood, stubs, and medium pruning of branches 2 inches in diameter or less.*

- *Pruning of replacement oak trees and preserved oak trees shall be in accordance with the guidelines published by the National Arborist Association. In no case shall more than 20 percent of the tree canopy of any oak tree be removed. Cuts over 2 inches in diameter shall require a pruning permit from the County. After pruning, installation of support cables to prevent future main crotch failures may be necessary based on a County-certified arborist's determination.*

- *All replacement oak trees shall be maintained in accordance with the principles set forth in the publication, Oak Trees: Care and Maintenance prepared by the Forestry Division of the County of Los Angeles.*

- *A two-year maintenance period shall begin upon the start of planting the replacement trees. All replacement trees failing to survive within this period shall be replaced. A new two-year maintenance period shall start for each tree that failed to survive and required a replacement tree to be planted.*

MM-6 Frequency of Watering

Care should be taken to avoid placing any irrigation devices within watering distance of the protected zone of oak trees. Too much moisture near the base of an oak tree is generally believed to be the leading cause of death of oak trees in residential settings, and oak root fungus can occur as a result of over watering. Oak trees survive and thrive on annual rainfall alone and generally do not require supplemental irrigation except during periods of extreme drought or for establishment of newly planted trees (i.e., replacement trees).

- *Irrigation water shall not reach within 15 feet of any oak trunk.*

- *Neither grass nor ground covers shall be planted under the canopy of oak trees.*

MM-7 Control of Diseases and Pests

Oak trees generally have an acceptable level of common insect pests. During the visual inspection of the trees assessed, no evidence of sudden oak death (*Phytophthora ramorum*) or bleeding canker (*Phytophthora cactorum*) was observed. However, oak wilt fungus (*Ceratocystis fagacearum)* was observed on two trees on the project site. The parasite, mistletoe (*Phoradendron villosum* ssp. *villosum*), is a common threat to oak

trees; however, despite the negative effect mistletoe has on its tree hosts, both mistletoe and oaks are native to California and have co-existed and co-evolved for hundreds of years. Mistletoe was observed on several of the oak trees surveyed.

- *A County-certified arborist shall evaluate the effects of mistletoe, pathogens, and insect pests on the remaining preserved and planted oak trees periodically (about every five to seven years), in addition to the overall health and structural integrity of the trees, to ensure longevity of remaining oak trees.*

MM-8 Construction Monitoring

Damage to remaining trees must be avoided by workers and equipment during construction activities.

- *A qualified biologist or County-certified arborist shall monitor on-site construction and grading activities occurring near all identified oak tree protection zones to ensure that damage to oak trees does not occur.*

- *Prior to initiation of construction activities, the qualified biologist or County-certified arborist shall schedule a field meeting to inform personnel (involved in construction) where all protective zones are located and the importance of avoiding encroachment within the protective zones.*

APPENDIX A

Oak Tree Survey Data

Appendix A - Landmark Village Project Oak Tree Survey Data

	Tree Number	4	8	9	10	13	14	15	16	17	18	19	20	21	22
Tree Characteristics	**Species**														
	Coast Live Oak	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
	Valley Oak														
	Scrub Oak														
	McDonald's Oak														
	Heritage Oak														
	Trunk Diameter	25,20,12,11	26,17,8	19,11	22, 16	24	25	12,8,6,6	17	20,18,15,11	20	22	22	30	17
	Tree Height	40	30	37	30	35	32	28	32	27	26	19	30	28	25
	Canopy North	33	26	27	18	24	10	15	32	16	20	2	18	15	15
	Canopy West	29	25	30	25	22	18	20	12	20	18	15	22	5	18
	Canopy South	30	27	28	11	28	19	12	13	28	23	3	15	0	3
	Canopy East	31	21	22	14	26	17	18	26	19	17	2	15	10	6
Physical Condition	**Tree Declining**				**X**		**X**					**X**			
	Broken/Dead Limbs				**X**					**X**		**X**	**X**	**X**	
	Sparse Foliage				**X**							**X**	**X**	**X**	
	Excessive Chlorosis/Necrosis											**X**			
	Mainstem Dieback														
	Poor Tip Growth				**X**							**X**		**X**	
	Cavity		**X**			**X**		**X**	**X**						
	Weak Crotch		**X**												
	Hollow Trunk													**X**	
	Trunk Exudation														
	Regrown Stump														
	Exfoliating Bark				**X**	**X**		**X**							
	Insect Damage					**X**	**X**	**X**							
	Diseased					**X**									
	Mistletoe														
	Leaning											**X**	**X**		**X**
	Excessive Water Shoots												**X**		
	Surface Roots														
	Fire Damage		**X**							**X**				**X**	
Measures	**Safety Prune**		**X**							**X**					
	Remove Deadwood														
	Cable/Brace			**X**											
Rating	**Vigor**	**A**	**B**	**B**	**D**	**D**	**C**	**C**	**B**	**B**	**A**	**D**	**C**	**C**	**B**
	Health	**A**	**B**	**B**	**D**	**D**	**C**	**C**	**B**	**A**	**A**	**D**	**C**	**C**	**B**
	Aesthetics	**A**	**B**	**B**	**D**	**D**	**D**	**C**	**C**	**B**	**A**	**D**	**C**	**D**	**B**
	Balance	**A**	**C**	**A**	**D**	**D**	**C**	**C**	**D**	**B**	**B**	**D**	**D**	**D**	**D**
Impact	**Removal**		**X**	**X**	**X**										
	Encroached														
	200ft from Grading	**X**				**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
Comments				NT.	NT.	NT. BH.	NT.	NT.	NT.	NT.	NT.	NT.			

Key for Comments:
BH = Bee Hive in Tree
DE = Data Estimated
NA = Not Accessable
NT = Not Transplantable
NTg = Not Tagged
LHB = Low Horizontal Branching

Appendix A - Landmark Village Project Oak Tree Survey Data

	Tree Number	24	25	26	51	60	61	63	64	81	83	84	87	90	91
Tree Characteristics	**Species**														
	Coast Live Oak	**X**	**X**	**X**	**X**		**X**	**X**		**X**	**X**	**X**		**X**	**X**
	Valley Oak												**X**		
	Scrub Oak					**X**									
	McDonald's Oak								**X**						
	Heritage Oak									**X**	**X**		**X**		
	Trunk Diameter	19	16	19	30	6,6,5,5,4	12,3	18,24	12	52,14	38,15	16,14	51	27	15,13,7,7
	Tree Height	17	32	22	42	16	20	47	28	20	39	21	50	28	40
	Canopy North	15	27	7	30	13	19	33	18	0	30	16	30	19	22
	Canopy West	17	24	7	28	13	22	32	20	0	34	15	29	16	23
	Canopy South	6	19	0	28	15	13	33	22	0	29	15	31	16	21
	Canopy East	11	8	2	30	14	9	30	18	0	32	12	29	18	22
Physical Condition	**Tree Declining**	**X**		**X**									**X**	**X**	
	Broken/Dead Limbs			**X**			**X**								
	Sparse Foliage	**X**		**X**									**X**		
	Excessive Chlorosis/Necrosis	**X**		**X**									**X**	**X**	
	Mainstem Dieback			**X**											
	Poor Tip Growth			**X**									**X**	**X**	
	Cavity	**X**	**X**											**X**	
	Weak Crotch														
	Hollow Trunk	**X**													
	Trunk Exudation														
	Regrown Stump														
	Exfoliating Bark	**X**	**X**	**X**	**X**		**X**	**X**							
	Insect Damage	**X**			**X**		**X**							**X**	
	Diseased														
	Mistletoe														
	Leaning														
	Excessive Water Shoots														
	Surface Roots							**X**							
	Fire Damage				**X**									**X**	
Measures	**Safety Prune**											**X**	**X**	**X**	
	Remove Deadwood														
	Cable/Brace														
Rating	**Vigor**	**D**	**C**	**E**	**A**	**A**	**C**	**A**	**B**	**F**	**B**	**B**	**D**	**D**	**B**
	Health	**D**	**C**	**E**	**B**	**A**	**C**	**A**	**A**	**F**	**B**	**A**	**D**	**D**	**B**
	Aesthetics	**D**	**C**	**E**	**A**	**B**	**C**	**A**	**B**	**F**	**B**	**B**	**C**	**C**	**B**
	Balance	**D**	**C**	**E**	**B**	**B**	**C**	**C**	**B**	**F**	**B**	**B**	**B**	**C**	**B**
Impact	**Removal**				**X**	**X**	**X**	**X**	**X**		**X**	**X**	**X**		
	Encroached														
	200ft from Grading	**X**	**X**	**X**										**X**	**X**
Comments		NT.	NT.	NT.						Permit not needed.				NT. BH.	

Key for Comments:
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LHB = Low Horizontal Branching

Appendix A - Landmark Village Project Oak Tree Survey Data

	Tree Number	92	93	96	97	98	99	100	101	102	103	247	248	249	250
Tree Characteristics	Species														
	Coast Live Oak	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Valley Oak														
	Scrub Oak														
	McDonald's Oak														
	Heritage Oak				X										
	Trunk Diameter	18,10	17	8,6,6,5	39	23,22	15	19,13,8,6	14,10,5	13,4	17,14,14,4	30,12,7	16,11,13,12	21,20,15,11	23,16,15,14
	Tree Height	32	32	30	55	42	22	41	32	37	40	43	38	47	35
	Canopy North	20	15	12	41	30	15	26	25	25	25	29	28	28	20
	Canopy West	18	17	15	40	27	10	26	22	26	29	30	25	29	21
	Canopy South	20	20	14	40	18	11	29	21	27	25	29	27	27	25
	Canopy East	17	21	15	36	21	11	28	20	24	27	27	29	26	25
Physical Condition	Tree Declining														
	Broken/Dead Limbs					X					X				
	Sparse Foliage					X									
	Excessive Chlorosis/Necrosis														
	Mainstem Dieback														
	Poor Tip Growth					X									
	Cavity				X	X					X			X	
	Weak Crotch														X
	Hollow Trunk														
	Trunk Exudation														
	Regrown Stump														
	Exfoliating Bark														
	Insect Damage														
	Diseased														
	Mistletoe														
	Leaning					X									
	Excessive Water Shoots														
	Surface Roots														
	Fire Damage				X	X				X	X				
Measures	Safety Prune					X									X
	Remove Deadwood					X									
	Cable/Brace					X									X
Rating	Vigor	B	A	A	C	C	B	A	B	B	B	B	A	A	A
	Health	B	A	B	B	C	B	A	B	B	B	B	A	A	A
	Aesthetics	B	B	B	B	B	B	A	B	B	B	A	B	A	B
	Balance	B	B	A	A	C	B	A	A	C	B	B	A	A	B
Impact	Removal												X	X	X
	Encroached	X	X			X	X	X							
	200ft from Grading			X	X				X	X	X	X			
Comments															LHB.

Key for Comments:
BH = Bee Hive in Tree
DE = Data Estimated
NA = Not Accessable
NT = Not Transplantable
NTg = Not Tagged
LHB = Low Horizontal Branching

Appendix A - Landmark Village Project Oak Tree Survey Data

	Tree Number	318	319	320	321	322	323	324	325	326	328	329	330	331	332
Tree Characteristics	**Species**														
	Coast Live Oak	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
	Valley Oak														
	Scrub Oak														
	McDonald's Oak														
	Heritage Oak									**X**	**X**	**X**		**X**	
	Trunk Diameter	18,21,14	16	30,15	19,11	17,17,16,16,9	25	10,11,16	27,13	55	39,7	42,11	32,32	39	25,22,17,8
	Tree Height	55	20	53	24	50	35	35	38	65	50	50	60	25	37
	Canopy North	29	1	31	33	27	27	1	31	38	12	24	38	30	26
	Canopy West	31	24	30	11	29	26	27	30	37	15	26	38	14	28
	Canopy South	30	32	43	2	28	25	30	28	39	32	21	40	2	33
	Canopy East	30	8	32	30	28	27	27	32	43	29	30	40	7	20
Physical Condition	**Tree Declining**		**X**												
	Broken/Dead Limbs											**X**		**X**	
	Sparse Foliage		**X**	**X**											
	Excessive Chlorosis/Necrosis														
	Mainstem Dieback														
	Poor Tip Growth														
	Cavity					**X**				**X**	**X**	**X**		**X**	**X**
	Weak Crotch														
	Hollow Trunk														
	Trunk Exudation		**X**		**X**										
	Regrown Stump											**X**			
	Exfoliating Bark										**X**				
	Insect Damage														
	Diseased														
	Mistletoe														
	Leaning		**X**												
	Excessive Water Shoots														
	Surface Roots														
	Fire Damage									**X**	**X**				
Measures	**Safety Prune**														
	Remove Deadwood														
	Cable/Brace														**X**
Rating	**Vigor**	**A**	**C**	**B**	**B**	**B**	**B**	**B**	**A**	**A**	**B**	**B**	**A**	**B**	**A**
	Health	**A**	**C**	**B**	**B**	**B**	**A**	**B**	**A**	**A**	**C**	**B**	**A**	**B**	**B**
	Aesthetics	**A**	**D**	**B**	**C**	**B**	**A**	**B**	**A**	**A**	**C**	**D**	**A**	**D**	**B**
	Balance	**A**	**D**	**B**	**D**	**B**	**B**	**B**	**A**	**B**	**D**	**C**	**A**	**D**	**C**
Impact	**Removal**														
	Encroached														
	200ft from Grading	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
Comments		NT.	NT. IP.	NT.	NT.	NT.	NT.	NT.	NT.	NT.	NT.	NT. IP.	NT.	NT.	NT. Tagged on south side.

Key for Comments:
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NTg = Not Tagged
LHB = Low Horizontal Branching

Appendix A - Landmark Village Project Oak Tree Survey Data

	Tree Number	333	334	335	336	337	338	339	340	341	342	343	344	345	346
Tree Characteristics	**Species**														
	Coast Live Oak	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
	Valley Oak														
	Scrub Oak														
	McDonald's Oak														
	Heritage Oak						**X**						**X**		
	Trunk Diameter	29	24	24,21,23	12,12,10,7	17,19	47	29	25	14	17,19,12,6	7	22,47	34,13	29
	Tree Height	30	37	40	17	45	21	45	48	42	40	18	37	57	34
	Canopy North	25	21	27	15	25	22	30	28	8	22	1	28	29	29
	Canopy West	25	26	25	12	28	12	28	27	11	30	6	32	33	30
	Canopy South	17	23	28	15	25	13	27	18	11	27	14	29	34	30
	Canopy East	25	22	23	17	27	44	28	26	22	24	8	30	28	28
Physical Condition	**Tree Declining**						**X**								
	Broken/Dead Limbs						**X**							**X**	**X**
	Sparse Foliage						**X**								
	Excessive Chlorosis/Necrosis														
	Mainstem Dieback						**X**								
	Poor Tip Growth														
	Cavity			**X**		**X**	**X**							**X**	**X**
	Weak Crotch														
	Hollow Trunk														
	Trunk Exudation			**X**										**X**	
	Regrown Stump														
	Exfoliating Bark						**X**							**X**	
	Insect Damage		**X**							**X**				**X**	
	Diseased			**X**											
	Mistletoe														
	Leaning														
	Excessive Water Shoots														
	Surface Roots														
	Fire Damage			**X**											
Measures	**Safety Prune**														
	Remove Deadwood														
	Cable/Brace														
Rating	**Vigor**	**B**	**A**	**B**	**B**	**B**	**D**	**A**	**A**	**B**	**A**	**B**	**B**	**A**	**C**
	Health	**B**	**B**	**B**	**B**	**B**	**D**	**A**	**A**	**B**	**A**	**B**	**B**	**C**	**C**
	Aesthetics	**B**	**A**	**B**	**B**	**A**	**D**	**A**	**A**	**C**	**A**	**C**	**B**	**C**	**B**
	Balance	**A**	**B**	**B**	**A**	**A**	**D**	**A**	**A**	**C**	**A**	**C**	**B**	**C**	**C**
Impact	**Removal**			**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
	Encroached														
	200ft from Grading	**X**	**X**												
Comments				BH.											

Key for Comments:
BH = Bee Hive in Tree
DE = Data Estimated
NA = Not Accessable
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NTg = Not Tagged
LHB = Low Horizontal Branching

Appendix A - Landmark Village Project Oak Tree Survey Data

	Tree Number	347	348	349	350	351	352	354	355	356	357	390	391	392	393
Tree Characteristics	Species														
	Coast Live Oak	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Valley Oak														
	Scrub Oak														
	McDonald's Oak														
	Heritage Oak			X			X				X				
	Trunk Diameter	28	17,11,8,8	36	17,11,11,10	25	63	30,18,15	35	16	53	14	14	19	19
	Tree Height	41	22	32	30	21	50	35	39	24	40	38	38	41	33
	Canopy North	21	15	16	18	16	45	25	28	0	30	20	27	30	15
	Canopy West	20	12	25	17	18	40	30	25	10	31	10	10	12	30
	Canopy South	22	16	27	22	15	43	21	23	32	37	10	7	13	12
	Canopy East	23	20	25	20	17	55	26	22	10	29	8	19	12	14
Physical Condition	Tree Declining										X				
	Broken/Dead Limbs														
	Sparse Foliage										X				
	Excessive Chlorosis/Necrosis														
	Mainstem Dieback														
	Poor Tip Growth														
	Cavity					X									
	Weak Crotch														
	Hollow Trunk														
	Trunk Exudation					X									
	Regrown Stump														
	Exfoliating Bark														
	Insect Damage														
	Diseased														
	Mistletoe										X				
	Leaning									X					
	Excessive Water Shoots														
	Surface Roots														
	Fire Damage														
Measures	Safety Prune			X		X									
	Remove Deadwood														
	Cable/Brace							X							
Rating	Vigor	B	A	A	B	B	A	B	B	B	C	B	B	B	B
	Health	A	A	A	B	B	A	B	B	B	C	B	B	B	B
	Aesthetics	A	A	A	B	B	A	A	A	C	B	C	B	B	B
	Balance	A	B	B	B	B	A	A	A	D	B	C	C	C	C
Impact	Removal	X	X	X	X	X	X	X	X	X	X				
	Encroached														
	200ft from Grading											X	X	X	X
Comments				LHB.											

Key for Comments:
BH = Bee Hive in Tree
DE = Data Estimated
NA = Not Accessable
NT = Not Transplantable
NTg = Not Tagged
LHB = Low Horizontal Branching

Appendix A - Landmark Village Project Oak Tree Survey Data

	Tree Number	396	397	398	400	401	404	405	410	414	415	417	422	425	426
Tree Characteristics	Species														
	Coast Live Oak	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Valley Oak														
	Scrub Oak														
	McDonald's Oak														
	Heritage Oak								X						
	Trunk Diameter	26,13,13,11	16	16	26	33,25,11,7	23	18,4	41	30	15	24	8,3,2,2	14,14,14	13,21,18
	Tree Height	40	38	28	39	43	50	47	46	30	25	30	25	42	40
	Canopy North	35	5	20	28	30	28	1	21	15	10	11	9	20	28
	Canopy West	28	17	19	27	30	34	17	33	15	21	16	16	27	30
	Canopy South	26	21	15	25	33	20	42	38	21	27	21	15	27	33
	Canopy East	39	21	3	27	36	24	12	20	40	11	15	6	17	30
Physical Condition	Tree Declining														
	Broken/Dead Limbs														
	Sparse Foliage														
	Excessive Chlorosis/Necrosis														
	Mainstem Dieback														
	Poor Tip Growth														
	Cavity														
	Weak Crotch														
	Hollow Trunk														
	Trunk Exudation														
	Regrown Stump														
	Exfoliating Bark					X									
	Insect Damage					X									
	Diseased														
	Mistletoe														
	Leaning		X	X						X					
	Excessive Water Shoots														
	Surface Roots											X			
	Fire Damage														
Measures	Safety Prune	X													
	Remove Deadwood									X					
	Cable/Brace														
Rating	Vigor	A	A	A	A	B	B	B	B	B	B	B	B	A	A
	Health	A	A	A	A	B	B	B	A	B	A	A	A	A	A
	Aesthetics	B	B	B	A	A	B	B	B	C	C	C	C	A	A
	Balance	B	C	C	A	B	B	B	B	D	C	C	B	B	B
Impact	Removal	X	X	X	X	X									
	Encroached														
	200ft from Grading						X	X	X	X	X	X	X	X	X
Comments										LHB.		Tag on west side of trunk.			Tagged on south side.

Key for Comments:
BH = Bee Hive in Tree
DE = Data Estimated
NA = Not Accessable
NT = Not Transplantable
NTg = Not Tagged
LHB = Low Horizontal Branching

Appendix A - Landmark Village Project Oak Tree Survey Data

	Tree Number	427	429	430	431	432	436	439	441	443	448	449	450	451	452
Tree Characteristics	Species														
	Coast Live Oak	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Valley Oak														
	Scrub Oak														
	McDonald's Oak														
	Heritage Oak				X									X	
	Trunk Diameter	20,26,7	17,18	8,8,4,4,3	38	18	27	19,6,17	8,7,7,3,2	32	15,16,20	33,19,21,24	15,13,9,9	37	23,26
	Tree Height	40	40	22	45	47	41	24	18	38	38	35	29	49	45
	Canopy North	26	26	18	28	20	31	12	15	32	31	25	26	32	30
	Canopy West	27	28	15	24	23	30	13	17	32	30	28	25	27	28
	Canopy South	27	28	6	35	20	29	18	8	30	32	42	16	26	25
	Canopy East	26	27	8	36	20	29	16	5	35	33	27	17	29	30
Physical Condition	Tree Declining	X													
	Broken/Dead Limbs														
	Sparse Foliage	X													
	Excessive Chlorosis/Necrosis														
	Mainstem Dieback														
	Poor Tip Growth														
	Cavity														
	Weak Crotch														
	Hollow Trunk														
	Trunk Exudation														
	Regrown Stump														
	Exfoliating Bark						X			X					
	Insect Damage														
	Diseased														
	Mistletoe														
	Leaning														
	Excessive Water Shoots														
	Surface Roots											X			
	Fire Damage														
Measures	Safety Prune											X			
	Remove Deadwood														
	Cable/Brace														
Rating	Vigor	D	B	B	B	A	B	A	B	B	A	B	A	A	A
	Health	D	B	A	B	A	B	A	A	B	A	A	A	A	A
	Aesthetics	C	A	C	A	B	B	A	B	B	A	C	A	A	A
	Balance	C	B	B	B	A	A	A	B	B	A	D	A	A	A
Impact	Removal														
	Encroached							X			X				
	200ft from Grading	X	X	X	X	X	X		X	X		X	X	X	X
Comments			Trunk growing around tag.	Numerous trunks.								Located in wash.			

Key for Comments:
BH = Bee Hive in Tree
DE = Data Estimated
NA = Not Accessable
NT = Not Transplantable
NTg = Not Tagged
LHB = Low Horizontal Branching

Appendix A - Landmark Village Project Oak Tree Survey Data

	Tree Number	453	454	455	458	459	485	487	488	489	490	491	492	498	499
Tree Characteristics	**Species**														
	Coast Live Oak	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
	Valley Oak														
	Scrub Oak														
	McDonald's Oak														
	Heritage Oak	**X**			**X**			**X**	**X**	**X**		**X**	**X**		
	Trunk Diameter	36	17,16,15,25	28,27,29,20,15	53	17	25	36,26	52	42	20	56	67	30,30,9,5,5,4	15,3
	Tree Height	45	35	25	40	29	40	48	65	52	40	46	50	35	25
	Canopy North	30	28	30	27	20	30	30	45	35	20	40	40	29	8
	Canopy West	28	29	25	26	18	32	36	40	35	25	31	32	21	11
	Canopy South	29	35	30	22	25	30	26	42	35	21	40	50	27	15
	Canopy East	32	28	18	30	18	21	32	45	45	5	43	36	21	14
Physical Condition	**Tree Declining**	**X**									**X**			**X**	**X**
	Broken/Dead Limbs														
	Sparse Foliage								**X**		**X**				**X**
	Excessive Chlorosis/Necrosis														
	Mainstem Dieback	**X**							**X**		**X**				**X**
	Poor Tip Growth														
	Cavity														
	Weak Crotch														
	Hollow Trunk														
	Trunk Exudation														
	Regrown Stump														
	Exfoliating Bark													**X**	
	Insect Damage														
	Diseased														
	Mistletoe														
	Leaning														
	Excessive Water Shoots														
	Surface Roots														
	Fire Damage														
Measures	**Safety Prune**				**X**			**X**				**X**		**X**	
	Remove Deadwood										**X**	**X**	**X**		**X**
	Cable/Brace														
Rating	**Vigor**	**C**	**B**	**A**	**B**	**B**	**B**	**A**	**C**	**A**	**D**	**B**	**B**	**D**	**D**
	Health	**C**	**B**	**A**	**A**	**B**	**B**	**A**	**B**	**A**	**C**	**B**	**B**	**D**	**D**
	Aesthetics	**B**	**B**	**A**	**B**	**B**	**B**	**A**	**B**	**A**	**D**	**B**	**B**	**D**	**D**
	Balance	**A**	**B**	**A**	**C**	**A**	**B**	**B**	**A**	**A**	**D**	**A**	**A**	**C**	**C**
Impact	**Removal**												**X**		
	Encroached								**X**	**X**				**X**	
	200ft from Grading	**X**	**X**	**X**	**X**	**X**	**X**	**X**			**X**	**X**			**X**
Comments							Located on toe of slope.								Excess water sprouts.

Key for Comments:
BH = Bee Hive in Tree
DE = Data Estimated
NA = Not Accessable
NT = Not Transplantable
NTg = Not Tagged
LHB = Low Horizontal Branching

Appendix A - Landmark Village Project Oak Tree Survey Data

	Tree Number	501	502	503	565	566	567	568	569	572	573	576	579	580	581
Tree Characteristics	**Species**														
	Coast Live Oak	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
	Valley Oak														
	Scrub Oak														
	McDonald's Oak														
	Heritage Oak			**X**	**X**										
	Trunk Diameter	9,5	12	41,27	45	29	35	14,15,17,10,5	32	12,12,14,34,22	7,6,5,5,6,5	6,6,5,4,4	15,3,3,1,4,4	7,5,4,4	8,6
	Tree Height	25	25	38	37	29	28	35	43	20	20	19	25	18	18
	Canopy North	12	15	32	22	23	22	29	33	16	8	12	12	10	8
	Canopy West	17	15	29	20	27	10	20	38	25	11	16	11	6	11
	Canopy South	18	16	33	30	20	25	26	40	27	16	18	12	12	10
	Canopy East	15	6	37	27	23	25	32	32	25	16	6	10	9	7
Physical Condition	**Tree Declining**				**X**		**X**								
	Broken/Dead Limbs														
	Sparse Foliage				**X**										
	Excessive Chlorosis/Necrosis														
	Mainstem Dieback				**X**		**X**								
	Poor Tip Growth														
	Cavity														
	Weak Crotch														
	Hollow Trunk														
	Trunk Exudation														
	Regrown Stump														
	Exfoliating Bark				**X**				**X**						
	Insect Damage														
	Diseased														
	Mistletoe														
	Leaning														
	Excessive Water Shoots														
	Surface Roots														
	Fire Damage														
Measures	**Safety Prune**														
	Remove Deadwood														
	Cable/Brace														
Rating	**Vigor**	**A**	**B**	**B**	**D**	**B**	**D**	**B**	**B**	**C**	**A**	**B**	**C**	**A**	**B**
	Health	**A**	**B**	**B**	**D**	**B**	**D**	**A**	**B**	**C**	**A**	**A**	**C**	**A**	**A**
	Aesthetics	**A**	**B**	**B**	**D**	**B**	**C**	**B**	**B**	**B**	**A**	**C**	**B**	**A**	**B**
	Balance	**A**	**C**	**B**	**C**	**B**	**C**	**B**	**B**	**B**	**A**	**B**	**D**	**A**	**B**
Impact	**Removal**														
	Encroached			**X**											
	200ft from Grading	**X**	**X**		**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
Comments					Mistletoe.			Soil build up at base.				Multiple trunks.			

Key for Comments:
BH = Bee Hive in Tree
DE = Data Estimated
NA = Not Accessable
NT = Not Transplantable
NTg = Not Tagged
LHB = Low Horizontal Branching

Appendix A - Landmark Village Project Oak Tree Survey Data

	Tree Number	585	586	587	592	593	594	1587	1588	1589	1590	1591	1592	1594	1596
Tree Characteristics	**Species**														
	Coast Live Oak			**X**	**X**	**X**			**X**	**X**	**X**		**X**	**X**	**X**
	Valley Oak	**X**	**X**					**X**				**X**			
	Scrub Oak						**X**								
	McDonald's Oak														
	Heritage Oak	**X**													
	Trunk Diameter	32,42	31	12,6,7,7	21,14,10,7	18	7,7,5,5,4	16	25	31	25,20	10	13	12	11
	Tree Height	40	40	20	23	30	17	37	40	37	48	32	37	19	20
	Canopy North	0	30	10	35	21	13	17	27	17	27	1	24	8	15
	Canopy West	0	34	14	22	20	17	16	21	34	38	18	15	12	5
	Canopy South	0	35	12	17	20	16	19	23	36	14	16	23	14	6
	Canopy East	0	30	12	16	26	17	18	17	28	30	2	12	8	10
Physical Condition	**Tree Declining**	**X**													
	Broken/Dead Limbs														
	Sparse Foliage													**X**	**X**
	Excessive Chlorosis/Necrosis														
	Mainstem Dieback														
	Poor Tip Growth														
	Cavity														
	Weak Crotch														
	Hollow Trunk														
	Trunk Exudation														
	Regrown Stump														
	Exfoliating Bark														
	Insect Damage														
	Diseased														
	Mistletoe														
	Leaning				**X**										
	Excessive Water Shoots				**X**										
	Surface Roots		**X**												
	Fire Damage														
Measures	**Safety Prune**														
	Remove Deadwood														
	Cable/Brace														
Rating	**Vigor**	**F**	**A**	**A**	**C**	**A**	**B**	**B**	**B**	**B**	**A**	**B**	**B**	**C**	**C**
	Health	**F**	**A**	**A**	**C**	**A**	**B**	**B**	**A**	**A**	**A**	**B**	**B**	**C**	**B**
	Aesthetics	**F**	**A**	**B**	**D**	**B**	**B**	**B**	**A**	**B**	**A**	**C**	**B**	**C**	**C**
	Balance	**F**	**B**	**A**	**D**	**B**	**B**	**B**	**B**	**B**	**B**	**C**	**B**	**C**	**C**
Impact	**Removal**						**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
	Encroached				**X**										
	200ft from Grading		**X**	**X**		**X**									
Comments		Permit not needed.													Located on slide.

Key for Comments:
BH = Bee Hive in Tree
DE = Data Estimated
NA = Not Accessable
NT = Not Transplantable
NTg = Not Tagged
LHB = Low Horizontal Branching

Appendix A - Landmark Village Project Oak Tree Survey Data

	Tree Number	1597	1598	1599	1600	1601	1602	1605	1606	1607	1608	1609	1610	1611	1612
Tree Characteristics	Species														
	Coast Live Oak		X	X	X	X	X	X	X	X	X	X	X	X	X
	Valley Oak	X													
	Scrub Oak														
	McDonald's Oak														
	Heritage Oak	X													
	Trunk Diameter	45	21	15,15	17,4,3	10,8	9,11	12	32	15	14	22	11,11	9	13,10
	Tree Height	55	25	32	33	26	35	40	45	32	42	40	30	21	23
	Canopy North	40	18	20	22	5	15	18	25	15	17	20	17	12	15
	Canopy West	35	16	15	24	15	19	16	27	18	15	25	18	13	11
	Canopy South	35	21	10	23	15	23	15	21	15	18	24	15	8	16
	Canopy East	35	16	10	26	8	14	15	23	16	15	23	17	10	12
Physical Condition	Tree Declining														
	Broken/Dead Limbs						X								
	Sparse Foliage		X												
	Excessive Chlorosis/Necrosis														
	Mainstem Dieback														
	Poor Tip Growth		X												
	Cavity				X		X								
	Weak Crotch														
	Hollow Trunk														
	Trunk Exudation														
	Regrown Stump														
	Exfoliating Bark														
	Insect Damage				X										
	Diseased														
	Mistletoe														
	Leaning														
	Excessive Water Shoots														
	Surface Roots		X												
	Fire Damage														
Measures	Safety Prune														
	Remove Deadwood														
	Cable/Brace														
Rating	Vigor	A	C	C	B	C	B	C	B	C	B	B	B	B	A
	Health	A	B	B	C	B	C	B	B	B	B	B	B	B	B
	Aesthetics	A	C	C	C	C	C	B	B	B	B	B	B	C	B
	Balance	A	C	B	B	C	C	B	A	B	B	B	B	B	B
Impact	Removal	X	X												
	Encroached							X							
	200ft from Grading			X	X	X	X		X	X	X	X	X	X	X
Comments			NT.						NT.					NT.	

Key for Comments:
BH = Bee Hive in Tree
DE = Data Estimated
NA = Not Accessable
NT = Not Transplantable
NTg = Not Tagged
LHB = Low Horizontal Branching

Appendix A - Landmark Village Project Oak Tree Survey Data

	Tree Number	1613	1614	1618	1620	1621	2251	2278	2279	2428	3073	4003	4007	4009	4016
Tree Characteristics	**Species**														
	Coast Live Oak	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	
	Valley Oak														
	Scrub Oak														**X**
	McDonald's Oak														
	Heritage Oak											**X**			
	Trunk Diameter	16,13,9,8	11,7	12	12	12	20,14	24	23	7.5	13	65,7,12,6	6,6,5,5,4	13	8,6,4,4,3
	Tree Height	30	27	21	40	30	37	40	37	20	30	22	23	25	16
	Canopy North	15	15	15	20	15	22	24	21	10	8	12	12	16	13
	Canopy West	15	20	10	22	10	23	28	29	12	14	30	12	16	19
	Canopy South	10	15	12	25	11	27	10	33	12	16	17	13	17	8
	Canopy East	12	16	10	22	15	17	25	30	4	12	12	11	17	5
Physical Condition	**Tree Declining**									**X**					
	Broken/Dead Limbs														
	Sparse Foliage									**X**					
	Excessive Chlorosis/Necrosis									**X**					
	Mainstem Dieback											**X**			
	Poor Tip Growth									**X**					
	Cavity														
	Weak Crotch														
	Hollow Trunk											**X**			
	Trunk Exudation														
	Regrown Stump											**X**			
	Exfoliating Bark														
	Insect Damage												**X**		
	Diseased														
	Mistletoe														
	Leaning														
	Excessive Water Shoots														
	Surface Roots														
	Fire Damage								**X**						
Measures	**Safety Prune**														
	Remove Deadwood														
	Cable/Brace														
Rating	**Vigor**	**B**	**B**	**B**	**B**	**B**	**A**	**B**	**B**	**D**	**B**	**D**	**B**	**B**	**B**
	Health	**B**	**B**	**B**	**B**	**B**	**A**	**B**	**B**	**D**	**A**	**B**	**C**	**A**	**A**
	Aesthetics	**B**	**B**	**B**	**B**	**B**	**B**	**B**	**A**	**D**	**B**	**C**	**B**	**B**	**B**
	Balance	**B**	**B**	**B**	**B**	**B**	**B**	**B**	**B**	**B**	**B**	**C**	**B**	**B**	**B**
Impact	**Removal**										**X**	**X**			**X**
	Encroached												**X**		
	200ft from Grading	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**				**X**	
Comments			NT.	NT.	NT.	NT.	NT.					Main trunk is nearly dead.	Multiple trunks.		

Key for Comments:
BH = Bee Hive in Tree
DE = Data Estimated
NA = Not Accessable
NT = Not Transplantable
NTg = Not Tagged
LHB = Low Horizontal Branching

Appendix A - Landmark Village Project Oak Tree Survey Data

	Tree Number	4017	4018	4019	4021	4022	4025	4026	4027	4028	4029	4030	4031	4032	4033
Tree Characteristics	**Species**														
	Coast Live Oak		**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
	Valley Oak														
	Scrub Oak	**X**													
	McDonald's Oak														
	Heritage Oak														
	Trunk Diameter	8,7,6,4,5	8	10,17	8	7,6,4	8	8	30	8	15,14	8	20	8	8
	Tree Height	16	23	40	18	25	20	16	40	15	28	20	30	20	16
	Canopy North	12	20	24	7	17	12	8	20	10	18	10	30	10	8
	Canopy West	9	13	14	5	11	12	11	20	10	20	11	20	10	12
	Canopy South	14	8	16	7	11	18	9	20	7	20	10	10	10	5
	Canopy East	12	13	20	10	17	10	8	20	10	16	12	20	5	4
Physical Condition	**Tree Declining**														
	Broken/Dead Limbs														
	Sparse Foliage														
	Excessive Chlorosis/Necrosis														
	Mainstem Dieback														
	Poor Tip Growth														
	Cavity														
	Weak Crotch														
	Hollow Trunk														
	Trunk Exudation														
	Regrown Stump														
	Exfoliating Bark														
	Insect Damage														
	Diseased														
	Mistletoe														
	Leaning												**X**		
	Excessive Water Shoots														
	Surface Roots			**X**					**X**						
	Fire Damage														
Measures	**Safety Prune**														
	Remove Deadwood														
	Cable/Brace														
Rating	**Vigor**	**B**	**B**	**B**	**B**	**B**	**B**	**B**	**B**	**B**	**B**	**B**	**B**	**B**	**B**
	Health	**B**	**B**	**B**	**B**	**B**	**B**	**B**	**B**	**B**	**A**	**C**	**B**	**B**	**B**
	Aesthetics	**B**	**B**	**B**	**C**	**B**	**B**	**B**	**B**	**B**	**B**	**B**	**B**	**B**	**B**
	Balance	**B**	**B**	**C**	**C**	**B**	**B**	**C**	**B**	**B**	**B**	**B**	**D**	**C**	**B**
Impact	**Removal**	**X**	**X**	**X**		**X**	**X**	**X**	**X**	**X**					
	Encroached														
	200ft from Grading				**X**						**X**	**X**	**X**	**X**	**X**
Comments			Soil build up at base.				NT. NTg, NAc, DE	NT.	NT. NTg, NAc, DE		NT.	NT. NTg, NAc, DE	NT. NTg, NAc, DE	NT. NTg, NAc, DE	NT. NTg, NAc, DE

Key for Comments:
BH = Bee Hive in Tree
DE = Data Estimated
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NT = Not Transplantable
NTg = Not Tagged
LHB = Low Horizontal Branching

Appendix A - Landmark Village Project Oak Tree Survey Data

	Tree Number	4034	4035	4036	4037	4055	4056	4057
Tree Characteristics	**Species**							
	Coast Live Oak	**X**	**X**	**X**	**X**		**X**	**X**
	Valley Oak							
	Scrub Oak					**X**		
	McDonald's Oak							
	Heritage Oak							
	Trunk Diameter	15, 10	22, 10	23	8	6,6	9,8,6,5	24
	Tree Height	40	40	36	20	20	28	18
	Canopy North	20	25	28	15	10	16	24
	Canopy West	22	30	25	10	15	15	21
	Canopy South	23	20	27	8	15	18	27
	Canopy East	25	10	26	10	14	14	22
Physical Condition	**Tree Declining**							
	Broken/Dead Limbs							
	Sparse Foliage							
	Excessive Chlorosis/Necrosis							
	Mainstem Dieback							
	Poor Tip Growth							
	Cavity							**X**
	Weak Crotch							
	Hollow Trunk							**X**
	Trunk Exudation							
	Regrown Stump							
	Exfoliating Bark							
	Insect Damage							
	Diseased							
	Mistletoe							
	Leaning							
	Excessive Water Shoots							
	Surface Roots						**X**	
	Fire Damage							**X**
Measures	**Safety Prune**							
	Remove Deadwood							
	Cable/Brace							
Rating	**Vigor**	**B**	**B**	**B**	**B**	**A**	**B**	**C**
	Health	**B**	**B**	**B**	**B**	**A**	**B**	**C**
	Aesthetics	**B**	**B**	**B**	**B**	**B**	**B**	**B**
	Balance	**B**	**C**	**B**	**B**	**B**	**B**	**B**
Impact	**Removal**					**X**	**X**	**X**
	Encroached							
	200ft from Grading	**X**	**X**	**X**	**X**			
Comments		NT. NTg, NAc, DE	NT. NTg, NAc, DE	NT. NTg, NAc, DE	NT. NTg, NAc, DE			

Key for Comments:
BH = Bee Hive in Tree
DE = Data Estimated
NA = Not Accessable
NT = Not Transplantable
NTg = Not Tagged
LHB = Low Horizontal Branching

APPENDIX B

Richard Johnson and Associates'
Boxing Specifications and Recommendations

Richard Johnson & Associates
Environmental Horticulture

801 Glenneyre Street, Suite D, Laguna Beach, CA 92651
P.O. Box 127, Laguna Beach, CA 92652
Ph. (949) 497-4248 • Fx. (949) 497-6440

January 31, 2006

Mr. Glenn Adamick
NEWHALL LAND
23823 Valencia Blvd.
Valencia, CA 91355

RE: **Landmark Village Oak Tree Boxing Specifications and Recommendations**

Dear Mr. Adamick:

Below are the boxing specifications and recommendations you requested for use in the Landmark Village Oak Tree Report.

Phase 1- Pre-Boxing Procedure Recommendations

1. First and most importantly, any and all candidate trees will be treated with the biostimulant product **IRON ROOTs** at a blended ratio of one gallon of product to 100-gallons of water. Hydro-inject this mixture in increments of 25-gallons(100 gallons per tree) into the root zone on all sides (4-points of the compass) of each tree to be boxed. Implement this action as soon as possible so product can be absorbed prior to excavation, at least one month prior to any perceived construction impact.

2. Apply the anti-desiccant product *Cloudcover* or equal 48 hours prior to side boxing per label instructions.

3. It is also highly recommended that all trees to be relocated be pre-watered prior to side boxing and relocation. Unless weather conditions are favorable

with periods of moderate rainfall in the months leading up to relocation, trees should be pre-watered two to three times prior to excavation. The last application should be made 48 hours prior to side boxing. The water should be applied at a slow rate to facilitate soil infiltration to a depth of at least four (4) feet. Application of water can be made using a water truck and hose.

4. Prune by removing all deadwood. **Do not remove any live tissue/branches greater than 2-inches., without a permit from the Forester.**

Phase 2- Oak Tree Side Boxing and Bottom Boxing Recommendations

1. Excavate the root ball of each tree in a manner that accommodates as much of the roots as possible and so root ball fits snugly in a square box with sloping and/or tapered sides.

2. Construct a soil berm around the inside edge of the box sides with cross dams to direct water into root ball. Also construct a soil berm 1 foot outside the trunk to prevent excess water from contacting trunk base. It is recommended that the root ball surface within the excavation be disturbed as little as possible. **Do not excavate soil surface within the boxed root ball to create watering basins**. Soil from side boxing excavation should be used for watering basin berms. Do not cover native soil grade with fill soil.

3. Box sides shall be made of one or two layers of ¾-inch plywood, or planks, one to 2-inches thick and reinforced with exterior bracing.

4. Two of the sides will be wider than the others and will have cleats along the vertical edges to hold the other two sides in place. Insert steel rods through and between the cleats to hold the four sides securely against the root ball. The root ball can then be undercut and the boards can be inserted to form the box bottom.

5. An option to using the steel rods, if tree weight is not too heavy, is to use steel straps (banding). Three bands will be needed around the sides and three around the bottom to secure the box.

6. No sooner than ninety (90) days after the above detailed side boxing, undercut the root ball, similar to using the rods. Secure the bottom to the box by banding the box with a minimum of two straps – install straps from top around the bottom in two places. A total of five bands should be needed.

7. Water needs will be dictated by both visual inspection and data obtained via optional soil moisture sensor readings.

8. Root ball soil moisture must be monitored on a weekly basis during winter months and daily during hot summer months.

9. An irrigation system is recommended. Otherwise, boxed trees will have to be hand-watered, via irrigation hose. An irrigation system should include a series of bubbler heads, placed in each corner of each tree box, to ensure even distribution of water.

10. Once the boxed trees are placed in the holding area, apply a 3-inch layer of oak leaves or coarse mulch atop the root ball area.

11. It is highly recommended that native soil from side box excavation be stored in a holding area to be used for backfill when replanting takes place.

Phase 3 - Planting Recommendations

Rooting patterns are determined by soil characteristics and growing practices as well as by species. Urban planting sites can prove extremely harsh for newly transplanted trees. Hardscape, such as paving and buildings, can greatly increase air temperature and radiation intensity. These conditions can make it difficulty for tree root systems to supply enough water to adequately support their tops or crowns. Thinning of the top growth, to balance with the root system, is often necessary to assist native plant recovery. Frequent watering and sturdy anchor staking will be needed.

1. When trees are transplanted, place the root ball one foot above grade to allow for any settling. Form a slope from root ball surface to grade with backfill soil. This will also reduce drainage problems. Surface to drain away from root ball.

2. Backfill tree with native surface soil from site or excavation soil saved from original tree boxing. **Do not use excavated soil from construction grading for backfill**.

3. Avoid planting tree in soil that has been compacted for construction. If there is absolutely no other alternative and tree is to be planted in soil compacted for construction, tree will need supplemental drainage installed and a wider planting pit. Do not cover native soil grade with fill soil.

4. Planting pit should be at least 4 feet wider than the root ball. All inside surfaces of the planting pit should be scarified to avoid creation of soil interface.

5. Form a basin around the root ball with cross dams and keep the root zone area wet.

6. Form the basin at the outer root ball edge so irrigation waters will be forced to percolate into the soil interface with the root ball and backfill, not just through the root ball. This is important as the root ball will consist mostly of porous soil and the possibility of an interface problem can prove critical to oak tree survival.

Follow-up Maintenance for Planting & Boxed Oak Trees

The following recommendations are given for newly planted specimen oak trees.

1. **All** trees require a basin formed at outer edge of root ball.

2. Form a cross dam for each basin to control applied irrigation.

3. Apply a consistent 3-inch layer of coarse mulch atop root ball. Keep mulch away from trunk by 10 to 12-inches. Do not allow mulch to cover root crown.

4. Apply **first irrigation** with a solution of product **Mycorrhiza ROOTs** at a ratio of one-16-ounce bag of product to 100-gallons of water. Flood/thoroughly drench each tree basin root ball and root zone area with resulting mixture, or enough to penetrate and wet sides of root ball and native soil of each tree.

5. **Second irrigation** apply **IRONROOTs** product only at a ratio of 32-ounces of product to 100-gallons of water. Inject in 25-gallon increments at the four points of the compass in each tree basin, or flood basin with the same amount.

6. After three months apply the product **Mycorrhiza ROOTS** to the root zone area.

Positive drainage is a critical component if trees are to survive. Positive, quick drainage is a must to ensure that soil remains damp, and not wet with standing water.

Fill basin with water. If water does not drain within one hour consider drilling holes through the pit bottom into native soil to a depth of 3-feet. Auger size should be no less than 2-inches in diameter. Backfill augered holes with ¾" crushed rock. Do not use pea gravel.
If you have any questions please, do not hesitate to give us a call.

RICHARD JOHNSON & ASSOCIATES, INC.

Dick Johnson
Resource Monitor